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‘Logged in’ or ‘Locked out’ ICT experiences of mature learners on a UK nursing programme

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Abstract

The explosion of Information, Communication and Technology (ICT) use in recent decades within healthcare, and particularly within nursing practice, is changing the ways in which patient care is delivered. Policy reviews and research evidence indicate that barriers to ICT usage are experienced by some groups of student nurses, particularly those who are mature and female, in a way that constrains potential impact on their professional development. This research adds to and develops the research evidence in the field by examining in what ways, and the extent to which, a group of mature, female, nursing students utilise ICT within the boundaries of one pre-registration nursing programme based on partnership working between a UK School of Health situated within a large university and its related NHS Trusts. Utilising a qualitative, case study approach this study examines the biographical, university and clinical placement use of ICT for student nurses. Consideration is given to the interconnectedness of these experiences as these students begin to develop their professional identities. The experiences of this group of students are determined through interviews and observation of clinical practice. Three research questions define the parameters of the research. These are: 1) How are mature, female nursing students accessing and using ICT within nursing education? 2) What are the barriers that may prevent mature, female students from accessing and using ICT within nursing education? 3) What actions do mature, female nursing students consider may be taken to improve their knowledge and subsequent use of ICT in both their academic studies and clinical placement work? Findings suggest that experiences of ICT relate to biographical history and the extent to which student nurses are supported and encouraged to engage with ICT in their university programme. The data suggests that for many student nurses the feeling and experiences of being generationally, emotionally and hierarchically ‘locked out’ of using ICT raises real challenges for the extent to which UK government and regulatory policy is being effectively enacted for particular groups of student nurses. This study, therefore, contributes to knowledge in and around pedagogical practice for preregistration nurse education programmes. In particular it raises the importance of locating policy development in this area around the explicit privileging and enabling of ICT usage in all practice situations. In other words the development of a collective efficacy in nurse pre-registration programmes that is suggestive of notions of being ICT ‘logged in’ rather than being ‘locked out’ for mature, female student nurses.

Keywords: ICT; technology, student nurses, barriers to learning

1 INTRODUCTION

The availability and expectation of the use of Information and Communication Technology (ICT) within the National Health Service (NHS) has opened up a whole new area of discussion within nursing and other health-related disciplines. The Department of Health (DH) (2011) has recognised that the appropriate use of ICT in the NHS is essential to the continuation of, and improvement in, the delivery of effective, good quality care. With regards to the nursing profession the availability of computer technology has opened up a whole new field of progress (Lowry and Johnson, 1999). Central to this is the notion that electronic data and knowledge are both key contributors to the overall improvement of patient care. In addition there is a strong emerging theme articulated in a number of important policy documents that the utilisation of ICT brings about a rich, focused, data informed evidence base which

is paramount to the continuation of professional nursing practice (Darzi, 2008). With regards to nurse education, Johnson and Eisenberg (1996) highlight how student nurses need to be able to utilise technology in a flexible, creative and purposeful way.

Nursing education exists at the interface of ITC developments in professional training, higher education and practical workplace use of ITC. E-Learning and Digital pedagogies are increasingly core to a good learning experience (Gordon, 2014) and access to on-line learning and learning resources is endorsed by the Teaching Excellence Framework, UK (OfS 2018) as one of the features of an excellent learning experience. Furthermore, there is agreement within the sector that use of technology in learning enables students to: access information flexibly in terms of space, place and mode of learning, gain knowledge and skills which are fundamental to employability, and understand fully the way in which technology enables students to connect with their peers and educators (JISC, 2017.) The integrated care agenda particularly requires practitioners to be able to fully engage with each other both face-to-face and on line, using systems which will connect different disciplines. (Kings Fund, 2018). There is an expectation within Higher Education that the contemporary graduate will be able to demonstrate ICT skills and this study argues that there are different levels of engagement with ICT at entry which could be described as a typology: ICT challenged, ICT averse, ICT proficient. Programmes need to acknowledge this difference and provide support to enable the development of both confidence and competence. The challenge lies in accommodating all students wherever they are positioned on this spectrum. Student nurses in the UK are on a programme which comprises 50% clinical placement. Lave and Wenger (1991) provide a useful model for situated learning and it could be argued that the formation of Communities of Practice (CoP) are central to professional socialisation and that it is helpful for students to be fully integrated into these collaborative communities. COPs are important within the realms of nurse education as the concepts of belonging, participation and collaboration are fundamental to their development and sustainability. Andrew, Tolson and Ferguson, (2008). However dissonance can exist at a systemic level between nursing practice and nursing education (Berry, 2011). Effective ICT engagement is part of the cultural landscape which enables full participation with a CoP.

The professional UK regulatory body for nursing, the NMC has recently published new professional standards (2018) for education programmes, these encourage the use of technology enhanced and simulation based learning in practical contexts as well as in academic components of the programme (NMC, 2018) .

These two elements of learning, the subject specific learning on programme and the more general learning which forms part of Higher education study combine to produce a range of transferrable skills for newly qualified nurses. These encompass competence in using particular systems and approaches and confidence in working with IT. Both of these areas are fundamental to the continued development of contemporary professional skills but also for the development of personal skills which will enable continued professional development and the acquisition of lifelong learning skills. Increasingly patients and service users are demonstrating consistent use of internet resources and engagement with Apps and other technology which supports care experiences and this is yet another layer in which nurses need to ensure that they are confident users of IT.

Other factors are also important, the university in which the study took place is described as a ‘widening participation university, taking a large proportion of non-traditional learners. This is coupled with the trend across the sector to encourage mature students into Nursing. Kevern and Webb (2004) argue that an enhanced widening participation agenda for nurse education and training, with an increased recruitment of mature, female student nurses with diverse educational and occupational experiences, bring with it a certain set of challenges with regard to ICT confidence and usage (Wilkinson, Roberts and While, 2013). However, although these challenges have highlighted the impact of the widening access agenda on ICT usage and mature, females specifically, it is yet to be examined in any detail in the literature. The emphasis on these issues is set to rise with the recent

innovations in preparation for clinical roles in Nursing teams which include the Nursing Associate, Nursing Apprenticeship and Assistant Practitioners (NMC, 2018).

This study focused on the lived experience of mature, female student nurses[1] and their use of Information and Communication Technology (ICT) in one pre-registration undergraduate nursing curriculum in the Northwest of the UK. The research examined the following issues:

- How are mature, female nursing students accessing and using ICT within nursing education?
- What are the barriers that may prevent mature, female nursing students from accessing and using ICT in nurse education?
- What actions do mature, female nursing students consider may be taken to improve their knowledge and subsequent use of ICT in both their academic studies and their clinical placement work?

Literature

Computer literacy simply defined concerns an individual's ability to interact with a computer (Poynton, 2005). Whereas information literacy focuses on the ability of an individual "to recognise the need for information, determine the extent of information needed, access information efficiently, critically evaluate information and its sources, classify, store, manipulate and redraft information collected or generated and incorporate selected information into their knowledge base" (Bundy, 2004 cited by Button, Harrington & Belan, 2014:1311). Bond (2009) identified that the nature of computing policies within the National Health Service (NHS) have certainly advanced over the last ten years since the initial publication of Information for Health (NHS Executive, 1998). Now deemed to be a seminal policy, this work marked a significant shift in the way that ICT was viewed within the NHS itself. "For the first time the focus moved away from the computer and onto the patient, promoting IT as a tool that could be used to improve both patient care and patient experience" (Bond, 2009:731). This underpinning approach has been further evidenced in other policy documentation but perhaps more recently in the NHS report *High Quality Care for All* (Darzi, 2008) where the use of computers were highlighted as having a major support role within differing healthcare settings (Bond, 2009). This includes the structural use of computer management systems such as EMIS.

However, the study undertaken by Bond (2009) found very little improvement in the information literacy skills of nurses when compared with research that she herself had undertaken in 2004. Bond (2009) found that student nurses were still unable to handle large amounts of data retrieved through online data base searches and she further advised that pre-registration nursing curricula within the United Kingdom did not prepare students to work with ICT in the way that expected of the graduate registered nurses. This was supported by Magg's study (2006) which concluded that formal ICT education for student nurses within pre-registration nursing curricula was limited. Magg further argued that consideration should be given to the formulation of an entry level technology skills test which should be used to determine a student's ICT competence on their admission to the pre-registration nursing course as older students often had limited access to computers or ICT instruction.

[1] A ''mature student' within healthcare education is defined as one who is aged 26 years or over before admission to the first academic year of their chosen course of study (Department of Health, 2010).

As a consequence of this it was suggested that these students needed time and support in order to gain the necessary confidence to master and use ICT in a meaningful way (Kozlowski, 2002). Wahoush and Banfield (2014) further argue that the transition from student nurse to fully qualified practitioner can hold many challenges, particularly within the realms of ICT usage and its application to evidence based care. They suggest that it can take up six months for a newly qualified staff nurse to realise the important changes to both professional responsibility and accountability.

Given that the impact of ICT is now both "inevitable and irreversible" (Edirippulige, Smith, Beattie, Davies, Wotton, 2007: 79), there is every reason to believe that healthcare across the board is not considered immune from these influences (Bembridge, Levett-Jones and Yeun-Sim Jeong, 2011). For this important reason it is now acknowledged by nurse educationalists that there exists an imperative for all student and qualified nurses working in healthcare settings to develop and improve their ICT skills in order to maximize the potential of technological developments. This includes enabling practitioners to access patient diagnostic information and also the necessary evidence/research bases in order that they provide the best possible holistic patient care (Wharrad, Cook and Poussa, 2005).

2 METHODOLOGY.

An interpretivist approach allowed the richness of the lived experience of those who chose to be in my study to be framed in worthwhile and meaningful dimensions (Gortner, 1993). Ethical clearance was obtained for the undergraduate, pre-registration nursing programme which is physically situated in a School of Health in a large modern university in the North West of England. It comprises 50% theory and 50% clinical practice as determined by the professional regulatory body, the NMC (2018). From a political perspective ICT use within the National Health Service has been defined by a number of historical and current Department of Health policy documents that have aimed to improve evidence based patient care and thus enhance the general successes of patient outcomes through an enhanced and focused use of ICT (DH, 2010).

Interviews were combined with observation. The sample included sixteen student nurses (all self-selecting) across all three years of the programme. Twelve of these were interviewed across four separate focus groups and four were interviewed individually. All female, student nurses of twenty-six years of age or over from this undergraduate pre-registration nursing programme were eligible to take part. A purposive sample of students reflected a diverse range of not just ages but differing biographical characteristics concerning for example ethnicity and marital status. Mentors who worked with the students in clinical arenas were also interviewed.

A focus group comprising of three Senior Lecturers from the same Institution of Higher Education and a further focus group of three qualified nurses, all nurse mentors based in clinical practice were also interviewed to provide triangulation. Mentor participation allowed consideration of the context. All interviews were transcribed and accompanied by contemporaneous field notes which were then coded and analysed.

3 RESULTS

Emergent themes from the analysis were subsequently categorised. These included:

3.1 Personal background and previous experience of using computers

"We had one at home but no I didn't really use computers that much to be honest until I started at the uni … So it's just been picking it up as I've gone along really."
"Games and that was it. I just used to play games. I could turn it on and off. If it didn't

work it got left".
Because I never needed to use it before I just used it really for Internet shopping when it came up to Christmas
"I've done the one that was previous to the European Driving Licence……CLAIT yes, I've done CLAIT and I've done all of those and I'm fine on that side of it but what I'm not good at is I just don't understand them and I find it very difficult."
"We might have had a lecture on eLearning like how to set up your e-portfolio or just accessing the library, the on-line library, but other than that no."

3.2 Experiences of ICT use on placement

"It's limited because we are not allowed direct access unsupervised. We are not allowed passwords but we are allowed to go on and do the assessment sheet, the triage sheet. Everything has to be supervised really."
It is right across the board for student nurses…… we can't go on the actual clinical information."
"You would have to watch them but you would never really get what they are doing unless they slow down and tell you and talk through what they are doing."

These are important factors when thinking about mature, female student nurses and their ICT usage within nursing education. Although as a group these students have been identified in the literature, Durndell et al (1995), as being less engaged in the use of ICT during their pre-registration nursing programme, there is evidence to suggest that the biographies of the individuals themselves exemplify both similar and different ICT trajectories. There are differences but also important common features.

3.3 On being generationally, hierarchically and generally 'locked out'

"*I feel like my grandma must have felt when decimal currency first came in I think. Because we were young and you were brought up to use it you didn't know any different but poor grandma struggled and we found it difficult to comprehend why she struggled".*
"John said, don't worry grandma, I'll show you how to use it. And he was six! "
"The expectation from……..that you come on this course and you are expected to know all that there is to know about it (computers)."
"I think on a couple of occasions it's even led to some dropping off the course. You know of students, I mean not loads and I've not got that much experience yet with this new curriculum, but students that don't submit and when you get to the bottom of it it's actually because they've not worked out how to use the e-learn, where to get the assignment guidelines from, how to get in their e-portfolio, and that's led to them dropping out I think."
"It's like a new language isn't it, I think it's… You know you get women in their thirties and forties, who've been doing their caring profession for so many years but they just can't use a computer, so I think you would have got quite a few that's dropped out because of that reason and they could have made really good nurses…….. Some people are proud as well aren't they? They are too proud to admit – well I can't do that. What's basic to some people is overwhelming for them."
"every time I switch on a computer I hate it.
".But when I come in I have all my housework to do, I've my washing to do, my ironing to do, my shopping, everything, and by the time I've done that….. and he's said – well you are going to have to manage your time better. So that's something else I am going to have to try and sort out. But whatever it takes I'll do it because I've waited too long to be able to do this course so I am not going to let a piece …., machinery get the better of me! But it is quite daunting I have to say."
"'……...sometimes in the lectures these young ones are coming out with stuff aren't they and they say – oh yes you do it like this and you get it off there. And you think – oh I don't know what you are talking about."
"I was terrified, absolutely terrified."
"Yes sometimes just 'the student'. I think sometimes as well if I'm being announced – oh

this is the student! And – meet the student, and – oh student can you come here. I've got to say it gets on my nerves sometimes."
"I mean if we had been shown how to do it maybe it wouldn't have been so stressful."
"Sometimes in lectures it can be quite tiring when they (the lecturers) open it up to questions. I mean some you just think –Oh can you not just pull them aside at the end rather than have all of us listening to this you know. It can get frustrating in that sense."

The youngest students in the mature student sample, described situations where they had been taught ICT skills at the beginning of the programme in groups with the older students and how this had posed a barrier to their own learning. They became exasperated emotionally as they considered that the programme did not reflect their own particular needs;

4 CONCLUSIONS

This study focused on three individual research questions, now integrated into a coherent whole. The study considered how ICT is considered, developed and enacted by mature, female student nurses. These are a nuanced set of experiences. Belonging to a Community of Practice (Lave and Wenger, 1991) is considered important but ICT can be one of the areas which contributes to marginalisation particularly where the biographical histories of the learners demonstrate a previous negative attitude to ICT, where mastery is underdeveloped and where practices exist which generate a theory-practice gap. In focusing on the development of clinical competence these students often view ICT development as of little importance. Students who were generationally 'locked out' viewed ICT as peripheral which added to the issues of marginalisation. This is in contrast to students who were situationally 'locked out' and described the frustrations of being unable to fully participate. Ironically this is not in terms of the Higher Education experience but at the core of clinical practice where the notion of development of professional identity development is most acute. Increasingly these students want to make use of ICT to engage with the administration of patient care, but also to engage with problem solving and evidence based practice. They have been provided with the theory but have not been provided with the opportunity to practice. Such students witness not just registered nurses but other members of the healthcare team utilising informatics in practice with which they are prevented from engaging in, generating what I have termed being, 'situationally locked-out'.

The use of ICT in clinical practice is a lens through which it is possible to think more fully about the nature of the placement, the student and the extent to which students are able to engage. It is central in the data that being 'locked out' is perhaps symptomatic of more general notions of 'lock-out' particularly during clinical placement. Evidence here suggested that many of the students in the sample encountered a strongly peripheral experience whilst on practice that was illuminated by not only a lack of ICT usage but also apparent in other aspects of their clinical work. Although this has something to do with individual biographies, a more important perspective focuses around issues of power and status which appear to be important factors when making sense of student nurses use of ICT and its centrality in becoming a professional nurse. Although it is apparent that biographical factors act as a barrier to ICT learning, the status of ICT usage within practice and what student nurses are able to access is perhaps most central and says something about the peripheral nature of the students' experiences which contribute to not being able to become part of a Community of Practice.

Additionally, some of the access issues appear to reflect broader questions concerning student nurses 'lock out' and therefore their legitimate, peripheral participation within a designated community of clinical practice. This goes beyond the writings of Bond (2004, 2009) and Moule (2003, 2010) in that it not only addresses cognitive and psychological issues but also examines the interrelationship between social dynamics of power and status and individual biographies that create either opportunities for or constraint in the lives of mature, female student nurses. Interpretation of these psychosocial factors seem to impact on the agency of mature, female student nurses and their experience of ICT usage not only in their university studies but also on clinical placement. The development of an analytical typology of ICT learning for mature, female student nurses attempts to

reflect the nuances and complexities of these psychosocial dynamics in a way that other research in the field has perhaps failed to explore.

The data and explanations documented within this study point to a whole set of interconnected experiences in the way individual mature, female student nurses engage with ICT in their pre-registration programme. Although there are 'horizontal' themes that I have explored through the data and literature what also strongly emanates from a vertical case analysis is the way that specific factors coalesce for nurses in the way that they develop their ICT capabilities. What this therefore suggests is that there might be a need to capture analytically this coalescing of factors in order to provide some clarity to the variety of experiences. In so doing, however, I recognise that this is a heuristic, a way of simplifying aspects of individualised reality in order to provide coherence of explanation. I am also conscious of the possibilities of essentialising the experiences of mature, female, student nurses which again I would wish to avoid. However, in documenting a typology of ICT usage by student nurses there is an opportunity of developing a more sophisticated and yet exploratory way of dealing with the complexity of experience;

Typology 1 - ICT Challenged, this typology is suggestive of the data in which previous experience of ICT usage is only related to those activities which are concerned with internet shopping and playing online games. The typology is suggestive of mature, female student nurses who although do not possess the skills and experience with regard to ICT usage, are those who display a degree of motivation and a willingness to learn.

Typology 2 - ICT Averse: this typology emanates from the data and is suggestive of those mature, female student nurses who require structured support and in-depth ICT skills development. They may have very limited ICT experience and are those who expressed feelings of fear and reluctance to engage with ICT usage. Instruction might be developed through certain principles of andragogy and be perhaps undertaken in a supportive environment, based on an individual learning contract where the benefits of ICT usage within nurse education and clinical practice are espoused.

Typology 3 - ICT Proficient: concerns those mature, female students who utilise ICT confidently on a daily basis both within their academic studies and at home but who become frustrated and marginalised particularly due to the access restraints placed upon them in clinical practice. These students are the ones who may pose a challenge to what might be considered conventional levels of ICT instruction as they may become bored and disengaged.

With further development the underpinning principles of this typology will enable nurse educators to consider the most appropriate ways to deliver ICT instruction particularly to those individual mature, female student nurses who appear to be more ICT averse. Additionally, the three aspects of the typology may contribute to future pre-registration nursing curricula design within the university where I am employed and potentially beyond, when aspects of ICT instruction are being considered based on the complexities of individual biographies and experience.

Implications for practice include the need for clearer ICT competency statements for undergraduate nursing curricula, a stronger focus on learning need using small groups and a focus on evaluating the impact on patient outcomes of increased ICT competence. Practical concerns in practice include ensuring better ICT access for students on placement and facilitation of ICT by mentors and other clinical staff.

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